

*Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.*



## HVLP Paint Sprayers

Thank you for purchasing a Campbell Hausfeld product. If you have any technical questions about this product, please call 1-800-626-4401.

**For Parts and Accessories: 1-800-626-4401**

**NOTE:** *If you purchased Model HV2105, please refer to page 8 for additional instructions on the setup and operation of your product.*



**REMINDER:** Keep your dated proof of purchase for warranty purposes! Attach it to this manual or file it for safekeeping.

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## Description

This product is a High Volume Low Pressure (HVLP) Paint Sprayer, a durable, self-contained painting system suited for painting cabinets, furniture, machinery, equipment, walls, trim, and many other surfaces. HVLP systems operate differently than those used with air compressors because HVLP systems do not require an air tank to hold compressed air. HVLP turbines are portable, can be plugged into standard outlets and sound similar to shop-vacs.

## Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

**⚠ DANGER** *Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

**⚠ WARNING** *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

**⚠ CAUTION** *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

**⚠ NOTICE** *Notice indicates important information, that if not followed, MAY cause damage to equipment.*

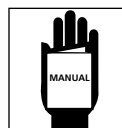
### Unpacking

After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Make sure to tighten fittings, bolts, etc., before putting unit into service.

**⚠ WARNING** *Do not operate unit if damaged during shipping, handling or use. Damage may result in bursting and cause injury or property damage.*

## General Safety Information

Read all instructions and safety precautions before operating the unit.



**⚠ WARNING** *• Risk of fire or explosion! Solvent and paint fumes can explode or ignite, causing severe injury and property damage.*



• *Paints and solvents containing HALOGENATED HYDROCARBONS can react explosively with aluminum. DO NOT USE HALOGENATED HYDROCARBONS WITH THIS EQUIPMENT. Consult the paint or solvent product label or Material Safety Data Sheets (MSDS) to help determine if it contains halogenated hydrocarbons.*

• *Make sure the room is well-ventilated.*

• *Avoid all ignition sources, such as static electricity sparks, open flames, hot objects, sparks from connecting and disconnecting power cords, and working light switches.*

• *Follow the material and solvent manufacturers' safety precautions and warnings. Do not use liquids with flash points less than 100 degrees Fahrenheit (38 degrees Celsius).*

• *Unit is not intended for spraying flammable materials other than lacquer. See Special Note on Lacquers and Other Oil (Solvent) Based Coatings.*

• *Do not carry TURBINE while spraying.*

• *Keep the turbine at the maximum distance from the spraying area.*

• *Static electricity can be produced by HVLP spraying. Make sure any electrically conductive object being sprayed is grounded to prevent static sparking. The sprayer is grounded through the electric cord. If an extension cord is necessary, the cord must be a grounded, 120 volt, three wire type cord.*

# HVLP Paint Sprayers

## General Safety Information (Cont.)

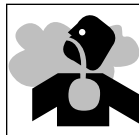
### SPECIAL NOTE ON LACQUERS AND OTHER OIL (SOLVENT) BASED COATINGS

When mixing or thinning:

- 1. Eliminate potential sources of fire**
  - Turn off the HVLP sprayer, all other electrical appliances, spark or flame sources
  - Follow lacquer (or other coating) and thinner (solvent) manufacturer directions very carefully
- 2. Minimize vapors in the spray area. Eliminate all potential for spilling lacquer or thinner in the spray area**
  - Tightly recap all containers immediately after mixing or thinning and store away from the spray areas.
  - Do not operate the HVLP turbine in the presence of open containers or spillage.
  - Make sure all vapors have dispersed prior to turning the HVLP sprayer on.

### ⚠ WARNING

• **Hazardous vapors: Paints, solvents, insecticides, and other materials may be harmful if inhaled, causing severe nausea, fainting, or poisoning.**



• **Always wear a mask or respirator and eye protection when painting. Be certain mask or respirator will provide necessary protection against inhalation of harmful vapors.**



• **NEVER point the spray gun at any part of the body, or at anyone else.**

### ⚠ CAUTION

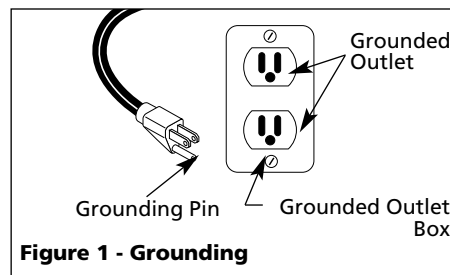
• **Tipping the gun may cause the gun to clog. Dried spray material clogs the pressure delivery tube and fittings. The spray gun does not function when clogging occurs.**

• **When not in use, be sure to disconnect the hose and place the gun on a solid, level surface or in the turbine gun storage area to avoid tipping.**

### GROUNDING INSTRUCTIONS

This product must be properly grounded. In the event of an electrical short circuit, grounding reduces the risk of electrical shock by providing an alternate path for the electrical current.

This product is equipped with a cord that has a ground wire and an appropriate ground plug. Plug the unit into an outlet that is properly installed and grounded in accordance with local codes and ordinances.



### ⚠ DANGER

**Improper installation of the ground plug can result in the risk of electrical shock. If repair or replacement of the plug or cord is necessary, consult an authorized service provider.**



- For any questions regarding proper installation of the ground plug, consult a qualified (licensed or certified) electrician.
- Do not modify the plug provided. If the plug does not fit the outlet, have the proper outlet installed by a qualified electrician.
- This product is for use on a nominal 120-volt circuit and has a grounding plug that looks like the plug in Figure 1. Make sure that the product is connected to an outlet having the same configuration as the plug. No adapters should be used with this product.
- If an extension cord is required, use only a three wire extension cord that has the same configuration as the unit cord, including the (round) ground terminal. Make sure that the extension cord is plugged into a properly grounded receptacle.
- When using an extension cord, be sure it is in good condition and heavy enough to meet the specifications in the chart below. If an extension cord is needed, the following wire sizes must be used (See Table 1).

## Extension Cord Requirements

Length of Cord	Gauge
25' .....	16
25-50' .....	14
50-100' .....	12
100-150' .....	10

Table 1 - Appropriate Extension Cord Lengths

# HVLP Paint Sprayers

## How Your HVLP System Works

Your turbine system has three components: the turbine unit, an air hose and a spray gun. The turbine unit, when connected to the correct electrical power supply and powered on, provides a continuous source of clean, warm, dry, High Volume Low Pressure air. The air hose connects the turbine unit to the spray gun. Air flows through the hose to the nozzle of the specially designed spray gun.

Atomization of the coating is achieved when the air mixes with the stream of fluid passing through the tip/nozzle. This low pressure atomization principle achieves minimum misting (overspray) to the spray environment.

The turbine blower has one air hose outlet on the side of the unit and is designed to run one spray gun. The 4-stage model has the capability to run two spray guns at the same time with an optional "Y" connector. When using only one spray gun, always be sure that one outlet is capped.

## How Your HVLP Spray Gun Works

Turbine Spray Guns are bleeder type spray guns. When the turbine is turned on, air will constantly flow through the air cap. This helps make the equipment more durable. Air also flows through the air feed tube in order to pressurize the cup, and deliver fluid to the tip/nozzle. When the paint flow screw is opened and the trigger pulled back, fluid flows through the tip/nozzle, mixing with the air flow delivered from the air cap. The spray gun projects a fine atomized mist on your work piece.

## Pre-Operation

### PREPARING TO USE YOUR HVLP TURBINE SYSTEM

1. Connect the air hose to the turbine. Pull back the spring loaded quick disconnect coupler and insert the male connector on the air hose into the turbine connector. Release the ring. Your air hose will be locked into place. To disconnect, pull back on the connector to release the air hose.

**CAUTION** *If you have just finished spraying, the metal coupler at the turbine end may be hot.*

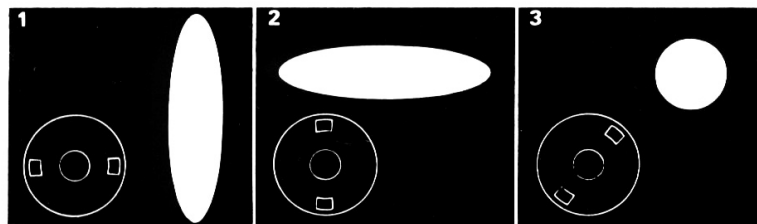
2. Plug the electric cord into a correctly grounded electrical outlet. Be sure the electric current is the correct voltage. If you need to use an extension cord, be sure it is at least 12 gauge wire and has a correctly grounded outlet.
3. Select a safe, well ventilated area where you will spray your work piece. Locate your turbine unit away from the area where you will be directly spraying. Do not cover or enclose the turbine. It is important to draw cool/ambient air through the unit for optimum performance. Avoid placing the

turbine in a warm environment or in direct sunlight.

### FAMILIARIZING YOURSELF WITH YOUR SPRAY GUN

HVLP Spray Gun:

1. Slide the lever to one side, releasing the cup from the holding pins on the cup. Reverse the procedure to install the cup onto the gun body. Make sure the cup is secure. Be sure the cup is centered on the gasket under the top of the cup.
2. Familiarize yourself with the controls on the spray gun. There are three main controls: rotating air cap, material flow knob and air cap locking ring. Click the rotating air cap into each position: horizontal, vertical and 45°. When the air cap is in the 45° position the pattern is round. This is useful for spraying small, narrow pieces of work. Paint flow will increase when using the diagonal position. It is usually necessary to reduce the paint flow by adjusting the flow knob. (See Figure 2)
3. Turn the material flow knob counterclockwise to open or release more fluid, clockwise to reduce or close material flow.



1. Use this position when spraying across from side to side.
2. Use this position when spraying from top to bottom.
3. Use this position for spotting small objects, corners and sharp angles.

**Figure 2 - Material flow knob positions and spray patterns**

# HVLP Paint Sprayers

## Pre-Operation (Cont.)

- Loosen the air cap locking ring one or two turns. This will feather the top and bottom of the fan pattern and slightly reduce the fan pattern size.

### COATINGS

**COATING PROPERTIES:** Coatings are a blend of resins and additives to create a product that will provide a protective and beautifying surface to your work piece. Different resins have different properties. It is important to use the correct coating to achieve a desired result. Manufacturers of coatings can control the resin solids content, production viscosity, sheen, color, flow-out enhancement and other properties. Some products offer ways to adjust the coating properties such as speeding up or slowing down the drying time, adding catalysts to strengthen the molecular bond or adding flattening agents to lower the sheen. Manufacturers will often give some guidelines on how to thin their product for spray application.

There are many different types of spray equipment in use. Coating manufacturers cannot address all of them. Make sure you know about your spray equipment. Make sure to use the correct fluid viscosity to produce the best possible results.

### YOUR CHOICE OF COATINGS AND

**VISCOSITY:** Extremely thin, watery or light bodied fluids such as inks, aniline dyes and oil stains can generally be used straight from the can. Most water based finishing products are also formulated to be used straight from the can without thinning with a 3 stage or larger turbine. Most other coating products will need to be thinned anywhere from 10% to 50% depending on the available air pressure of the turbine model and the

properties of the coating selected (see Table 4).

**HVLP TURBINE PROPERTIES:** Each turbine unit offers the finisher a maximum operating pressure. This pressure is determined by the size and output of the unit you have selected. The maximum available pressure will have a direct bearing upon the viscosity of the fluid that you choose to spray. Atomizing pressure and fluid viscosity directly relate to the efficiency of the equipment operation and the quality of the results that you will achieve.

### Turbine Performance

Turbine Size	4 stage
Unrestricted Pressure	7.0 psi
Coating Types	Light-Heavy
	Viscosity Materials

**Table 2**

The available air volume and pressure at the air cap will meet the delivery of fluid coming out of the nozzle to create a fine mist called atomization. This mist travels directly to your work piece where it blends together to form

a connected wet film. Achieving a smooth, level surface will depend on the proper relationship between available atomizing pressure, the viscosity of the coating being applied and the properties of the coating.

**USING LATEX PAINT:** Although your turbine spray system is best suited to spray Class A Finish coatings such as lacquers, enamels, urethanes, varnishes, waterbornes etc., you can spray latex house paint if you follow a few simple rules:

- It is necessary to thin some latex paints. This will vary from as little as 5% to no more than 20%. This will depend on the model turbine you are using and the quality of the paint used.
- It is necessary to use a larger nozzle and needle set in the spray gun (2.0 mm or 2.5 mm).
- It is recommended that a latex conditioner, Floetrol, be added to aid flow-out. If unable to find this product, locate one that is labeled "latex enamel" or "HVLP compatible." These products are available at local paint stores.

## Nozzle, Needle, and Air Caps

Tip/Needle Size	Application	Air Cap
.75 mm (.0295) HV104520SV	Inks, dyes, stains, extremely thin viscosity fluids, water based finishes	HV104505AV
1.0 mm (.039) HV104521SV	All purpose, thin lacquers, thin enamels, water based finishes, automotive, marine, airplane finish	HV104505AV
1.5 mm (.059) HV104522SV	Catalyzed lacquers, conversion varnish, primers, automotive, marine, airplane, finish varnish, high viscosity industrial coatings, urethanes, enamel	HV104505AV, A.5297
2.0 mm (.079) A.5220-2	Thinned latex paint, multi-spec, heavy primers, butyrate, nitrate dope, high viscosity industrial coatings	A.5297
2.5 mm (.098) A.5221	Thinned latex paint, multi-spec, solvent adhesives, wax based paint strippers	A.5297

**Table 3 - Needle, Nozzle, and Air Cap Combinations**



# HVLP Paint Sprayers

## Pre-Operation (Cont.)

### PREPARING TO SPRAY

After some practice, you should be ready to spray your coating of choice on your work piece. (See the **Operation** section for more information on spray patterns, spray gun use, and other usage procedures). Good quality results with your HVLP system are a combination of:

- Careful preparation of your project
- A proper spraying environment
- A basic knowledge of the coatings you will be using and how these coatings work with your spray equipment
- Close adherence to safety precautions

## Operation

### SPRAY PATTERNS

Your spray gun offers you many options. You can adjust (click) the air cap to three positions. One will produce a horizontal pattern for spraying across, another will produce a

vertical pattern for spraying up and down, and the third will produce a round pattern to spray small or narrow pieces. (See Figure 2.)

### USING YOUR SPRAY GUN

Your spray gun is certified High Volume Low Pressure. This means your spray gun only uses from 3 psi to 10 psi (depending on your turbine unit) of air pressure measured at the air cap. All passages and air ports are much larger than on a conventional spray gun. If one of these air passages becomes blocked, or buildup of material starts to occur, your spray pattern will become distorted. Therefore, always keep your spray gun clean.

Your spray gun comes fitted with a 1mm tip/nozzle and needle inscribed with the number "2". This will cover about 85% of all the materials/coatings that you will spray. Using this size tip/nozzle and needle, you can achieve a 1/4" line up to a 10" fan pattern just by rotating the air cap to the desired fan type (see Spray Gun Diagrams), opening the material flow knob counterclockwise and moving the

spray gun closer or further away from your work piece. A little practice will enable you to master this technique.

**PRACTICE:** Practice using your spray gun by following these steps:

1. Remove the cup from your spray gun. Fill it halfway with some water.
2. Attach the cup to the body of the spray gun.
3. Attach the spray gun to the air hose.
4. Turn the turbine unit on.
5. You will notice air is now flowing through the air cap. This is normal and correct.
6. Position the air cap in the horizontal position (see Figure 2) and turn the material flow knob counter clockwise approximately 1 to 1-1/2 turns.
7. Point the spray gun away from yourself (and anyone else) and pull the trigger all the way back. You should see a "V" shaped mist (or triangle) called a fan pattern.
8. Now, with the trigger depressed, slowly begin to turn the material flow knob clockwise (closing). Notice that the fan pattern is beginning to get smaller.
9. Turn the material flow knob counterclockwise and notice the pattern get larger.
10. Take a large piece of cardboard and direct the pattern at the surface. Turn the material flow knob 2 full turns and hold the spray gun approximately 6" from the surface.
11. Pull the trigger. Observe the outline and size of the pattern.
12. Turn the material flow knob clockwise (closing). Move the spray gun 1-2" closer to the surface.

## Viscosity

Type of Coating	Amount to Thin/Reduce (Typical)
Lacquers	25-50%
Sanding Sealer	20-30%
Enamels	20-40%
Stains	Use from can
Acrylic Enamel	50-60%
Catalyzed Polyurethane	10-30%
Polyurethanes, Varnishes	20-30%
Waterborne Coatings	0-10%
Latex Paint, Emulsion Paint	10-40%

**NOTE:** The amount of thinning needed will depend on the model turbine used, flow out properties of the coating, and the desired appearance of the finished work piece. It is best to test spraying results prior to thinning.

**Table 4 - Types of Coatings, Recommended Amount of Thinning**

# HVLP Paint Sprayers

## Operation (Cont.)

13. Pull the trigger. Notice the pattern has become smaller. (You can continue reducing the material flow and move the spray gun even closer to the surface and the pattern will keep getting smaller).
14. Rotate the air cap to a diagonal position (See Figure 2).
15. Every so often, turn the material flow knob to a different position. Also, change the distance of the spray gun from work surface. Notice how doing this changes pattern size.

There is one additional control to know. If you loosen the air cap locking ring, approximately 1-2 turns, you can control the fan pattern size and trim off the edge of the fan pattern itself. This should be considered a secondary control, the primary fan pattern size being adjusted between fluid flow and distance of the spray gun from the work piece.

### **⚠WARNING**

**Even when the turbine is turned off, pressure will remain in the spray cup. When trigger is pulled back, a stream of fluid will flow. To prevent accidents, turn material flow knob clockwise until it is completely closed, locking trigger in closed position.**

**NOTE:** It is not necessary to empty and clean your spray gun when you pause between applications. Be sure, however, to clean your spray gun thoroughly at the end of your work session.

### **NOTICE**

**Clean spray gun thoroughly at end of work session. Do not allow coating to dry in spray gun overnight or at any time when not in use.**

Extra caution should be taken when spraying coatings that have a catalyst or hardener added since many of these coatings have short pot life. These

coatings can harden in your spray gun quickly, making cleaning difficult or impossible. Read manufacturer's coating instructions to help determine how quickly a particular coating will harden in your spray gun.

### **SPRAYING TECHNIQUE**

Practice is the key element in achieving a proper spray technique. Never try to rush the spray finishing process. Learn the properties of the coating you will be spraying. Build up layers of material (3-4 applications, or more if needed). Sand between coats, if needed, and allow proper drying time between applications.

Remember to keep the distance of the spray gun the same when moving across your work (called a "pass"). Do not rotate or turn your wrist from side to side (See Figure 3). Move the spray gun across your work from end to end. Be sure to maintain the same speed of movement. This will ensure an even application of coating. Always release the trigger at the end of a pass.

Continue spraying in the opposite direction overlapping your previous coat by 1/3 to 1/2. When finished, you should have an even wet coat on your work. If you have dry spots, you have overlapped too widely.

If you have heavy or wet spots, you have overlapped too much. When spraying a large or pre-assembled piece, start at the top and work down. Try to spray the hard-to-reach surfaces first. Keep in mind that a light, wet film will generally produce better results than a heavy, wet coat. When spraying a vertical surface, apply a thin "tack" coat first, followed by a normal light wet coat. This technique will help prevent "runs" and "sags."

When using your Spray Gun you control five variables.

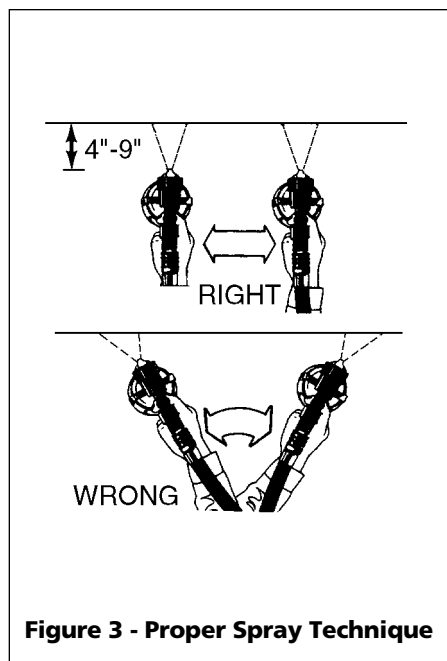
1. Fluid flow
2. Distance of the spray gun from your work. (4"-8" is average. Closer if necessary.)
3. Pattern Direction (vertical fan, horizontal fan and round)
4. Speed of application
5. Fan pattern control (adjust air cap ring)

**NOTE:** Items 1, 2, and 4 directly relate to each other.

### **RUNNING MULTIPLE SPRAY GUNS WITH A TURBINE**

It is possible to run the 4-stage turbine system with two spray guns at the same time by installing "Y" Connector to the turbine outlet port.

**IMPORTANT:** If the "Y" connector is installed and only one spray gun operated, the 2nd outlet must be capped or closed so that performance to the single spray gun will not be affected.



**Figure 3 - Proper Spray Technique**

# HVLP Paint Sprayers

## Operation (Cont.)

### USING PRESSURE POTS WITH TURBINE SYSTEMS (HV2105)

When using a remote cup or pressure pot, it is necessary to introduce compressed air in order to pressurize the remote pot and move the fluid from the pot to the tip/nozzle of the spray gun. In general, 5 pounds of pressure is sufficient for most average viscosity fluids in order to deliver the proper flow of fluid to the tip. Higher pressure would only be necessary for a heavier viscosity fluid.

A good test to determine the correct fluid delivery is as follows:

1. Pressurize the pot. DO NOT turn on the turbine.
2. Pull spray gun trigger until a stream of fluid flows from the tip/nozzle.
3. Adjust the pressure until the fluid drops off or bends at approximately 2-1/2 inches (6.35 cm). Pot pressure should be correct at this point.

### **AWARNING**

***Always depressurize the remote pot using the safety valve when the equipment will be idle for a while. This will prevent excess fluid from remaining in the fluid hose, and prevent a possible accident should the trigger be pulled and paint streams from the spray gun.***

Always ensure that the remote cup is tightly sealed, and all gaskets are in good shape, to prevent air and fluid leaks.

Be sure to flush and clean fluid hose at the end of a work session.

For smaller jobs, insert a one gallon can inside the 2.5 gallon pressure pot. This will keep the inside of the pot clean.

### USING OPTIONAL ACCESSORIES WITH SPRAY GUN

**OPTION 1:** In parts diagram on page 14, locate Item No. 13. Most turbine spray guns are fitted with this blanking cap. You can remove the cap and install Item Nos. 14A and 14B. This gives you the option to attach your air hose onto this port instead of into the handle. To install, unscrew blanking cap. Screw in Item No. 14A and 14B. To use this port, unscrew the male hose coupler and screw onto Item No. 14A. Take the small blanking cap (Item No. 14B) and screw it onto the threads at the bottom of the handle. Reverse these two fittings to use the air hose coupled to the handle.

**OPTION 2:** This will allow you to control the air flow and create textured or splatter paint effects. To install, remove blanking plug (Item No. 13) or Item Nos. 14A and 14B. Screw Item No. 13A into the spray gun. After installing the air control/texturing device, turn the adjusting screw as far as you can counter clockwise (open). Always use in the full open position unless it is necessary to reduce the flow of air, or to create a textured or splatter effect.

## Additional Instructions for Model HV2105

### UNPACKING

Remove contents of shipping box and lay out all of the pieces. You will find the cart base, handle, 2.643 gallon (10L) pressure pot (with regulator, gauge, safety valve and connectors attached), 3/8" black lined fluid hose, bag of nuts and bolts for assembly, and instructions.

**NOTE:** Do not place pressure pot onto the cart or insert handle into cart base until the turbine unit is firmly bolted and secured to the cart. Using the cart without the turbine installed can result in the cart tipping over.

### ATTACHING TURBINE UNIT TO CART

1. Set the turbine unit on the cart base plate with the turbine air hose quick disconnect coupler facing out.
2. Line up the four holes on the turbine base plate with the four holes on the cart base plate.
3. Secure turbine unit to cart base plate with the four hex bolts, washers and hex nuts (supplied). Insert bolt through the holes, place washer over the bolt on the underside, screw hex nut onto bolt and tighten. Be sure that hex nut is tight enough so as not to vibrate loose.
4. Insert the chrome handle into the frame tube. Be sure to push handle all the way down so that the spring loaded buttons lock into place, securing the handle firmly.
5. Plug turbine unit into outlet on side of the Cart.
4. Place the 2.643 gallon (10L) pressure pot onto the pressure pot deck. Align the fluid outlet toward the front of the cart. This will position air inlet toward the back of the cart.

**NOTE:** Pressure pot support rings can be adjusted for use with different size pressure pots.

### CONVERT SPRAY GUN FROM CUP GUN TO PRODUCTION FLUID FEED

1. Remove cup assembly.
  - a. Disconnect the upper section of the air feed tube from the non-



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## Additional Instructions for Model HV2105 (Cont.)

return valve, leaving the valve attached to the lower section of the tube. This will provide safe storage while using the spray gun without the cup in a production mode.

- b. With a wrench, loosen the center bolt and remove the cup assembly. Set aside.
- c. Remove air feed connector and upper section of air feed tube with small wrench.
- d. Install the blanking screw provided (10/32") to close the hole where you removed the air feed connector. Store the air feed connector with tube attached in the cup assembly for future use.

### ATTACHING AIR HOSE AND FLUID HOSE

1. Attach turbine air hose to handle of spray gun with quick disconnect coupler.
2. Insert the male coupler on the other end of the air hose into the quick disconnect coupler on the turbine unit. 3. On spray gun, put a strip of Teflon tape around the threads on the fluid connector.
4. Screw one end of the black fluid hose onto fluid connector. Secure and tighten.
5. Locate paint outlet on lid of the 2.643 gallon (10L) pressure pot (marked on the pot). Put a strip of Teflon tape around the threads of the Fluid Connector.

6. Take the other end of the black fluid hose and attach it to the paint outlet (marked on the pot). Secure and tighten.
7. Locate the compressor under the Pressure Pot Deck. Take the air hose from the compressor and connect the female quick disconnect to the male connector (marked air inlet).
8. Your cart system is now set up for production spraying.

### PREPARING TO SPRAY

**NOTE:** Never open the pressure pot without turning off the air compressor and releasing the air pressure in the pot with the air pressure release valve. (Open valve until all pressure is released. Pressure gauge will read "0 psi" when there is no more pressure in the pot).

1. Prepare your paint or coating for spraying. Adjust viscosity as recommended. See page 6 for viscosity guidelines.
2. Carefully loosen the four wing nuts to remove the pot lid. Open the pressure pot. (**NOTE:** You may have to disconnect the air hose from the compressor when opening the lid. Be sure to reconnect air hose when the lid is closed again). You can either pour your coating into the pot, or you can insert a smaller container inside the pot, making sure that the material pick-up tube is inserted into the coating. Place the lid back on top of the pressure pot, making sure that it is properly seated. Bring each wing nut back into place and secure the lid firmly.
3. Secure each wing nut into place using a cross pattern, rotating an even amount of pressure on each one until each is tight and secure.
4. Plug the power cord into a proper grounded receptacle outlet.

### NOTICE

*If you are using an extension cord, it is imperative to use at least a 12 gauge cord to avoid damage to electrical components.*

### SETTING POT PRESSURE AND PRIMING SPRAY GUN

5. Turn on the mini-compressor unit. Locate the on/off switch, which is mounted on top of the silver box on the compressor located at the back of the cart. Move the switch to the "ON" position. You should hear the compressor activate.
6. Look at the pressure gauge located on top of the pressure pot lid. You will notice the gauge begin to rise. Attached to the pressure gauge is the pressure regulator. The pressure gauge will tell you how much pressure is in the pressure pot. Generally you will only need about 5 psi for most light to medium viscosity fluids. Increasing pressure should only be necessary for high viscosity fluids.
7. If the pressure rises above the desired maximum, you can release pressure in the pot with the air release valve and control the maximum amount of pressure with the pressure regulator.
8. To decrease pressure, rotate the knob on the pressure regulator counterclockwise. To increase pressure rotate the knob clockwise. Stop when the desired pressure is achieved.
9. Your compressor is set to shut off when the desired pressure is reached and back on when the pressure drops down. This has been preset at the factory and should not be readjusted.

# HVLP Paint Sprayers

## Additional Instructions for Model HV2105 (3F485) (Cont.)

**NOTE:** The following action should be done without the turbine running.

10. When your desired pot pressure has been set, pull the spray gun trigger back. The first time you are using the pressure pot each day, or after the pressure pot has been depressurized, it will take about a minute for the material to flow through the fluid hose to the spray gun (priming the spray gun).
11. Hold the spray gun safely away from you. When the material reaches the tip of the spray gun, a stream of fluid will flow out.
12. Watch the fluid stream. It should extend out 2-1/2" (6.35 cm) before the stream begins to bend. If it extends out more than this, then you have too much pressure. If it is too little, then you need more pressure. Adjust accordingly.
13. Once this is adjusted, locate the black ring on the pressure regulator and screw it back into the pressure regulator knob. This will lock the regulator settings in place.
14. Turn on the turbine system. You should now be able to spray continuous volume from the pressure pot.

**NOTE:** Never open the pressure pot without turning off the air compressor and releasing the air pressure in the pot with the air pressure release valve. (Open valve until all pressure is released. Pressure gauge will read "0 psi" when there is no more pressure in the pot).

### CLEANING THE SYSTEM

1. When you are finished spraying for the day, it is wise to clean your

spray gun, the pressure pot and the fluid line. While it is possible to leave fluid in the pressure pot between uses, be sure that all materials are compatible with the components of the pressure pot to avoid fluid contamination. Never leave catalyzed or epoxy materials in the pot beyond suggested pot life of the fluid product to avoid set up and hardening of the coating and damage to the pot, its components, fluid lines and the spray gun.

2. Release all air pressure in the pot. Locate the air release valve and turn counterclockwise.
3. You will hear a "hissing" sound. The pressure in the pot is now releasing. You will also notice that pressure gauge will lower to "0 psi". Once there is no more pressure in the pot, it is safe to open.
4. Follow normal cleaning procedures of the spray gun as outlined in the **Maintenance** section and in the information supplied with the spray gun.
5. Clean pressure pot and fluid lines with appropriate cleaning materials for the product being sprayed. Use caution and follow all safety guidelines specified by the product manufacturer.
- 6.. Spray cleaning fluid from the pressure pot through the fluid line and the spray gun until you are satisfied that all paint or coating material has been flushed through the system.

Store equipment for future application.

## Maintenance

### TURBINE MAINTENANCE

The turbine unit needs very little maintenance. The motor has sealed bearings that are pre-lubricated. No service is necessary. Periodically, the turbine air filters and pre-filters should be examined. Clean filters are critical to good performance and equipment longevity. Your turbine has 2 replaceable filters (see **Turbine Repair Parts** on page 13).

- Remove the two hex-head securing nuts in order to remove the filters for cleaning or replacement.
- Periodically wash and blow excess dust and dirt with water and an air compressor. Dirty filters will reduce the air being drawn through the motor. This will cause the unit to run unusually hot, and it will lower spray performance and reduce the life of the motor.
- Clean and/or replace filters and pre-filters when you suspect they can no longer be cleaned.

### CLEANING YOUR SPRAY GUN

After spraying, clean your spray gun to prevent buildup and hardening of coating inside. Proper cleaning will help prevent equipment damage and will increase equipment life.

1. Empty any unused paint from the paint cup. Wash out any residue with a cleaner compatible with the coating, or water if using a water based material.
2. Fill the cup part way with cleaner. Spray through the gun to flush out the material passages.
3. Remove the air cap and clean. Make sure that the air holes in the horns of the air cap are clean.
4. Using a brush and solvent, remove any paint deposits on the outer surface of the tip/nozzle. If it is

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# HVLP Paint Sprayers

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## Maintenance (Cont.)

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necessary to remove the tip/nozzle and needle for cleaning, the following procedure should be used:

- a. Unscrew the material flow knob. Remove the needle spring, and then withdraw the needle.
- b. Remove the tip.
- c. Clean both tip and needle using cleaner or water and a brush.
- d. Reassemble all parts, making sure that all washers and gaskets are replaced correctly.
- e. Oil the needle spring and put a spot of oil on the gland seal to prevent the needle from sticking. To adjust the gland nut, tighten until needle sticks, and then slacken off by about 1/8 turn.
- f. Check the cup top gasket and replace if damaged. Always seat the cup top gasket flat in the cup groove. Failure to do this will allow the cup to drip and impair the spray pattern due to loss of pressure.
- g. Lubricate all threads to ensure smooth operation.

Blockages and or leaks may occur if the gun is left on its side or turned upside down. Always hang the gun by the hook when not in use.

# HVLP Paint Sprayers

## Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
No paint comes out when trigger is pulled	<ol style="list-style-type: none"> <li>1. Cup not pressurizing due to loose fittings</li> <li>2. Cup not pressurizing due to loose cup connection</li> <li>3. Cup top gasket damaged</li> <li>4. Blockage in "C" shaped tube underneath cup top lid</li> </ol>	<ol style="list-style-type: none"> <li>1. Check air feed tube/one way air valve and air feed connector.</li> <li>2. Make sure cup is screwed on or clamped on tightly.</li> <li>3. Check for damage and replace if necessary.</li> <li>4. Look under cup top lid. Locate "C" shaped tube. Remove blockage from it.</li> </ol>
Excessive overspray	<ol style="list-style-type: none"> <li>1. Too much distance from spray gun to work piece</li> <li>2. Too much spray material coming out</li> <li>3. Too much air power behind pressure stream</li> <li>4. Tip/needle assembly too large</li> </ol>	<ol style="list-style-type: none"> <li>1. Move spray gun closer to work piece.</li> <li>2. Decrease the amount of spray material flowing through spray gun.</li> <li>3. Reduce air power (use optional air control/texturing device).</li> <li>4. Use a smaller tip/needle assembly instead of the current one you are using.</li> </ol>
Coating on surface of work piece is not flat and level after drying (orange peel effect)	Coating not strained/thinned properly	Thin coating more.
When spray gun is connected to turbine and turbine is on, air continually flows through air cap even if trigger is not pulled	N/A. This is normal and expected. "Bleeder" type guns are set up this way to help increase the life of the turbine motor.	

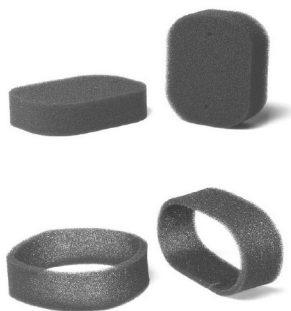
**For Replacement Parts, Call 1-800-626-4401**

*Please provide following information:*

- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

*Address parts correspondence to:*

Campbell Hausfeld  
100 Production Drive  
Harrison, OH 45030 U.S.A.

**Turbine Repair Parts**

**Filter Assembly  
Part No. CH4098**



**2-1/2 Gallon (10L) Cart  
and Fluid Feed System  
Part No. HV210510AV**



**5' Whip Hose  
Part No. HV0125**



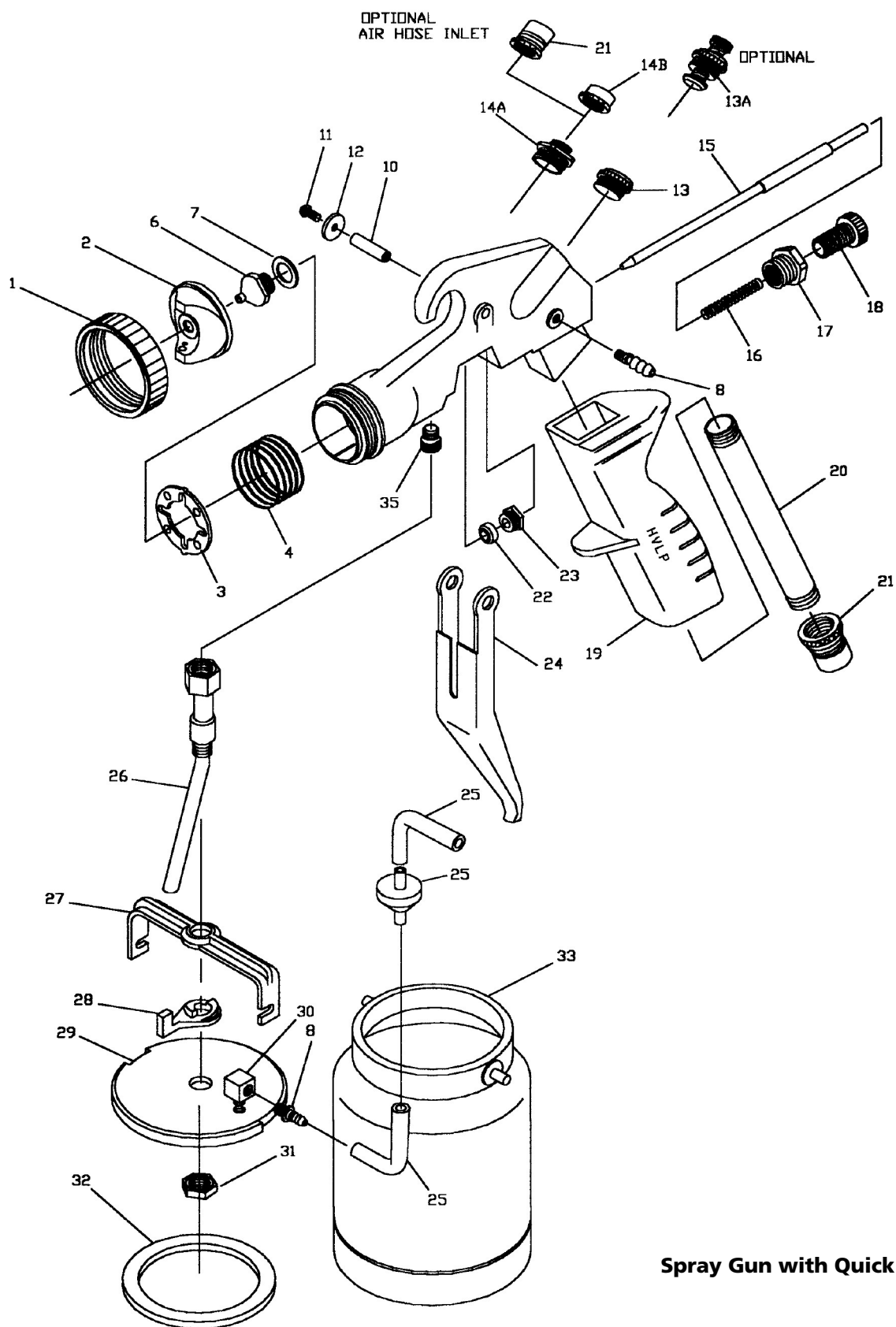
**25' Air Hose  
Part No. HV0126**

**Parts Not Pictured:**

**Female Quick Connect for Air Hose  
Part No. HV002200AV**

**Male Quick Connect for Turbine  
Part No. PM068020AV**





### Spray Gun with Quick Release Cup

## For Replacement Parts, Call 1-800-626-4401

Please provide following information:

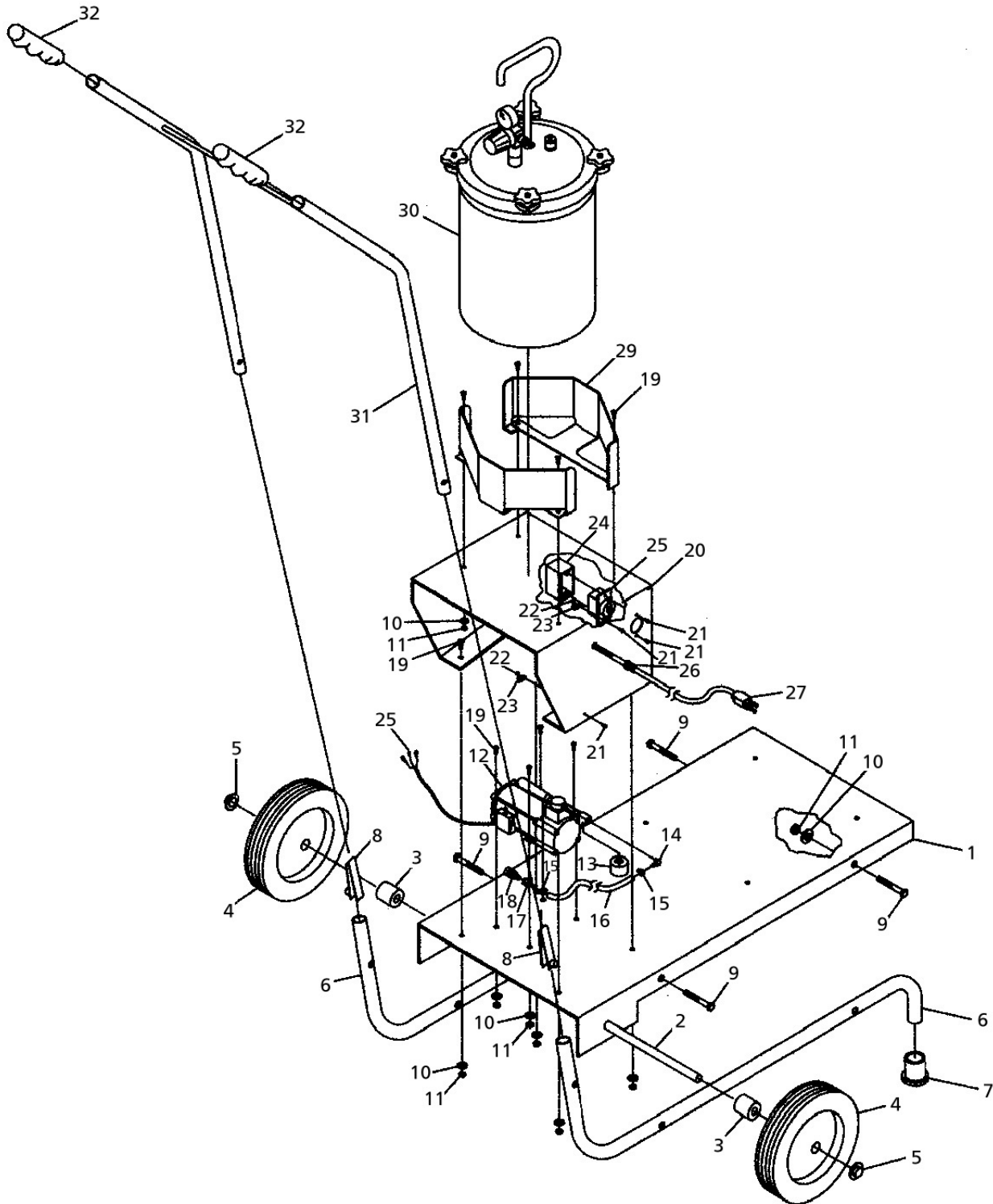
- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

Address parts correspondence to:  
Campbell Hausfeld  
100 Production Drive  
Harrison, OH 45030 U.S.A.

### Parts List for Spray Gun with Quick Release Cup

Ref. No.	Description	Part Number	Qty.
1	Air cap ring	A.5200	1
2	Air cap #2	HV104505AV	1
	Air cap #3	A.5297	1
3	Air distributor plate (stainless)	HV104511AV	1
4	Air distributor spring (stainless)	HV104512AV	1
5	<i>Not applicable</i>		
6 ▲	Fluid nozzle/jet (stainless) 0.75mm	HV104520SV	1
	Fluid nozzle/jet (stainless) 1.00mm	HV104521SV	1
	Fluid nozzle/jet (stainless) 1.50mm	HV104522SV	1
	Fluid nozzle/jet (stainless) 2.00mm	A.5220-2	1
	Fluid nozzle/jet (stainless) 2.50mm	A.5221	1
7	Fluid nozzle gasket	HV104524AV	1
8	Air feed connector	A.5211	1
9	<i>Not applicable</i>		
10	Trigger bushing (comes with Item No. 11)	HV104521SV	1
11	Trigger pivot screw (stainless) (comes with Item No. 10)	HV104521SV	1
12	Trigger screw washer	HV104508AV	1
13	Air blanking plug	A.5202	1
13a	Air control texturing valve	A.5257	1
14a	Upper port insert	HV103901AV	1
14b	Air blanking plug	HV104001AV	1
15	Needle (stainless) 0.75mm	▲	
	Needle (stainless) 1.00mm	▲	
	Needle (stainless) 1.50mm	▲	
	Needle (stainless) 2.00mm	▲	
	Needle (stainless) 2.50mm	▲	
16	Needle spring (stainless)	HV104513AV	1
17	Adjuster insert	HV104503AV	1
18	Material flow knob	HV104502AV	1
19	Gun casting (handle)	A.5225	1
20	Handle tube	A.5226L	1
21	Air hose quick release coupler (male)	A.5227	1
22	Packing	HV104514AV	1
23	Packing nut	HV104515AV	1
24	Trigger	HV104507AV	1
25	Air feed tube and non return valve	A.5232	1
26	Center bolt/pickup tube	A.5274	1
27	Yoke	A.5271	1
28	Lever	A.5278	1
29	Cup top casting	A.5270	1
30	90 degree miniature brass block	A.5266	1
31	Cup top lock nut	A.5272	1
32	Cup top gasket (white poly)	A.5280	1
33	Quick release cup	DH077900AV	1
	Quick release cup (Teflon coated)	A.5277	1
34	<i>Not applicable</i>		
35	3/8" Fluid connector	A.5254	1

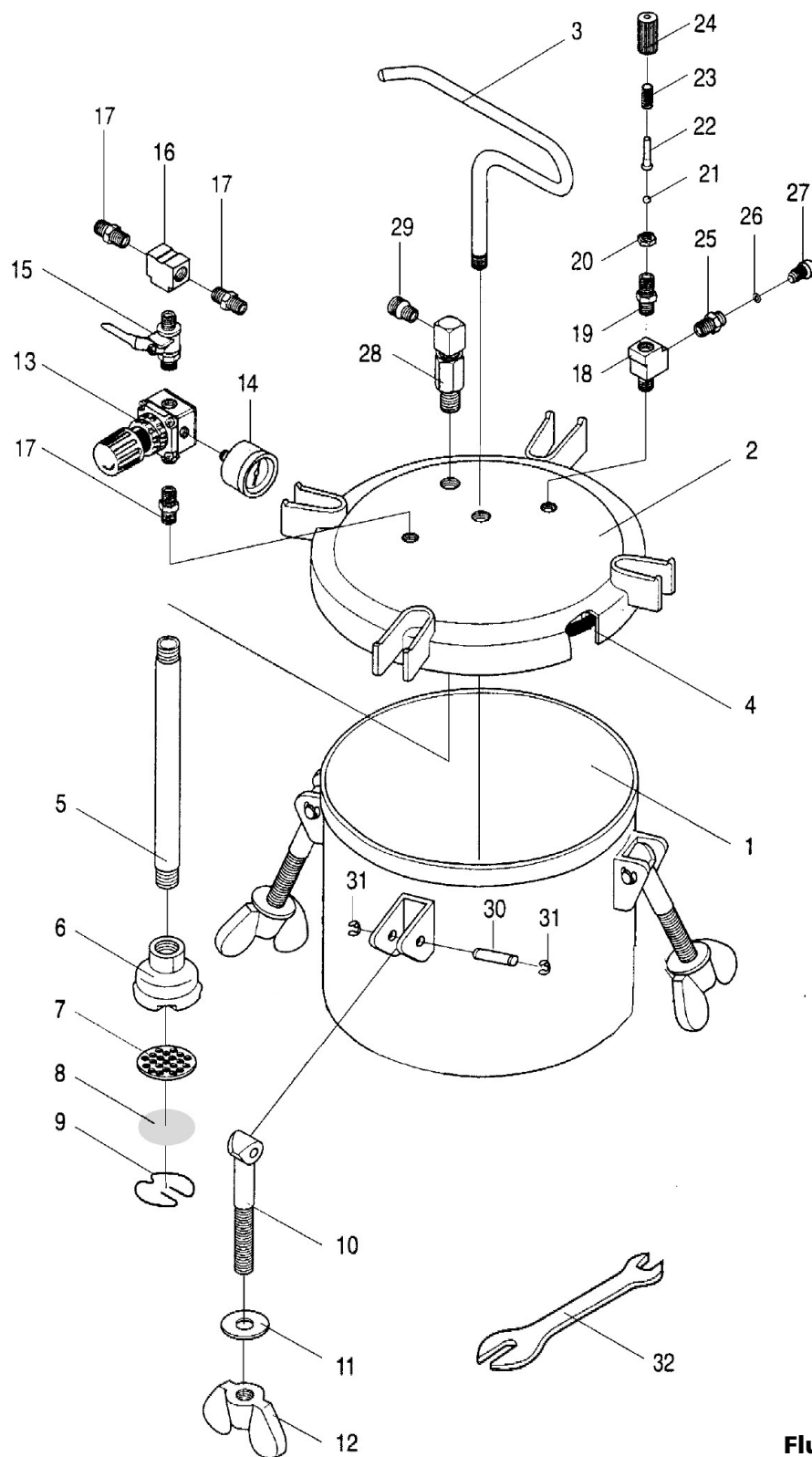
▲ All fluid/nozzle jets (Item No. 6) include the corresponding needle of the same size (Item No. 15).



**Cart Assembly  
For Model HV2105 only**

**Parts List for Cart Assembly, For Model No. HV2105 Only**

Ref. No.	Description	Part Number	Qty.
1	Cart base plate paint blue	A.4554	1
2	Cart axle (zinc plated)	A.4555	1
3	Wheel spacer (6061 alu.)	A.4556	2
4	10" x 1-3/4" wheel	A.4558	2
5	1/2" Axle cap	A.4374	2
6	Frame tube (chrome)	A.4551	2
7	Rubber tip for frame tube	A.4559	2
8	Handle button	A.4560	2
9	1/4" x 20 x 1-1/4" Hex bolt plated .5.	A.4364	4
10	1/4" SAE F/W plated washer	A.4300	20
11	1/4" x 20 Hex nuts plated	A.4308	20
12	110V Mini compressor nut	A.4198	1
13	Pressure regulator	A.4998	1
14	1/8" male NPT x 1/4" male hose barb 90°	A.4503	1
15	Air hose clip (stainless steel)	A.4033	2
16	1/4" Air hose, per foot	A.2116	3
17	1/4" x 1/4" Female swivel barb	A.2119	1
18	Quick connect female with 1/4" male thread	A.4026	1
19	1/4" x 20 x 1/2" Hex bolt plated .5.	A.4320	16
20	Pressure pot deck	A.4553	1
21	6-32 x 1/2" Phill pan M/S plated	A.4318	4
22	6-32 Hex M/S nuts plated	A.4307	2
23	Cable clamps, black	A.4051	2
24	Outlet box (plastic)	A.4557	1
25	Outlet 15 Amp-125 volt	A.4197	1
26	Flexible cord protector	A.4053	1
27	8' Power cord	A.4028	1
28	Large ring terminal	A.4178	3
29	Support ring for pressure pot	A.4552	2
30	2.5 gallon pressure pot	A.4113	1
31	Handle (chrome)	A.4006	1
32	Handle grip	A.4042	2



**Fluid Tank Assembly  
For Model HV2105 only**



**Parts List for Fluid Tank Assembly, For Model No. HV2105 Only**

Ref. No.	Description	Part Number	Qty.
1	Fluid tank	A.4901	1
2	Lid assembly	A.4902	1
3	Handle	A.4903	1
4	Gasket	A.4904	1
5	Material pickup tube	A.4905	1
6	Material filter housing	A.4906	1
7	Filter base	A.4907	1
8	Material filter element	A.4908	1
9	Snap ring	A.4909	1
10	T-bolt	A.4910	4
11	Washer	A.4911	4
12	Wing nut	A.4912	4
13	Pressure regulator	A.4913	1
14	Pressure gauge	A.4914	1
15	On/off valve	A.4915	1
16	3-Way block	A.4916	1
17	1/4" x 1/4" Adapter	A.4917	3
18	3-Way block	A.4918	1
19	Adapter	A.4919	1
20	Nut	A.4920	1
21	Steel ball	A.4921	1
22	Needle rod	A.4922	1
23	Spring	A.4923	1
24	Safety valve housing	A.4924	1
25	Adapter	A.4925	1
26	O-ring	A.4926	1
27	Release valve	A.4927	1
28	Material outlet adapter	A.4928	1
29	Adapter	A.4929	1
30	Cotter pin	A.4930	4
31	C-Snap ring	A.4931	8
32	Wrench	A.4932	1

### ***Limited Warranty***

1. **DURATION:** From the date of purchase by the original purchaser as follows: Standard Duty Paint Application Systems and all Paint Application Accessories - 1 year, Serious Duty Paint Application Systems - 3 years, Extreme Duty Paint Application Systems - 5 years.
2. **WHO GIVES THIS WARRANTY (WARRANTOR):** Campbell Hausfeld/A Scott Fetzer Company, 100 Production Drive, Harrison, Ohio, 45030, Telephone: 1-800-626-4401.
3. **WHO RECEIVES THIS WARRANTY (PURCHASER):** The original purchaser (other than for purposes of resale or rental) of the Campbell Hausfeld Product.
4. **WHAT PRODUCTS ARE COVERED BY THIS WARRANTY:** All non-compressor driven paint application systems, HVLP spraying systems, and paint application accessories supplied or manufactured by the Warrantor.
5. **WHAT IS COVERED UNDER THIS WARRANTY:** Defects in material and workmanship which occur within the duration of the warranty period. Warrantor will also cover normal wear items for a period of thirty days from the date of original purchase against defects in material and workmanship. These wear items are: HVLP-filters, motor brushes, gun packing, gun canister seal, gun check valve and gun air flow ring; Airless-inlet valve, outlet valve, gun valve, filters, tips, all seals and o-rings.
6. **WHAT IS NOT COVERED UNDER THIS WARRANTY:**
  - A. Implied warranties, including those of merchantability and FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED FROM THE DATE OF ORIGINAL PURCHASE AS STATED IN THE DURATION. If product is used for rental purposes, the warranty will apply for ninety (90) days from the date of original purchase. Some states do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.
  - B. ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL LOSS, DAMAGE, OR EXPENSE THAT MAY RESULT FROM ANY DEFECT, FAILURE, OR MALFUNCTION OF THE CAMPBELL HAUSFELD PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
  - C. Any failure that results from an accident, purchaser's abuse, neglect or failure to operate products in accordance with instructions provided in the owner's manual(s) supplied with product. Accident, purchaser's abuse, neglect or failure to operate products in accordance with instructions shall also include the removal or alteration of any safety devices. If such safety devices are removed or altered, this warranty is void.
  - D. Normal adjustments which are explained in the owner's manual(s) provided with the product.
  - E. Items or services that are normally required to maintain the product: HVLP-filters, motor brushes, gun packing, gun canister seal, gun check valve and gun air flow ring; Airless-inlet valve, outlet valve, gun valve, filters, tips, all seals and o-rings, or any other expendable part not specifically listed, will only be covered for thirty days from date of original purchase.
7. **RESPONSIBILITIES OF WARRANTOR UNDER THIS WARRANTY:** Repair or replace, at Warrantor's option, products or components which are defective, have malfunctioned and/or failed to conform within duration of the warranty period.
8. **RESPONSIBILITIES OF PURCHASER UNDER THIS WARRANTY:**
  - A. Provide dated proof of purchase and maintenance records.
  - B. Deliver or ship the Campbell Hausfeld product or component to the nearest Campbell Hausfeld Authorized Service Center. Freight costs, if any, must be borne by the purchaser.
  - C. Use reasonable care in the operation and maintenance of the products as described in the owner's manual(s).
9. **WHEN WARRANTOR WILL PERFORM REPAIR OR REPLACEMENT UNDER THIS WARRANTY:** Repair or replacement will be scheduled and serviced according to the normal work flow at the servicing location, and depending on the availability of replacement parts.

This Limited Warranty applies in the U.S., Canada and Mexico only and gives you specific legal rights. You may also have other rights which vary from state to state, or country to country.